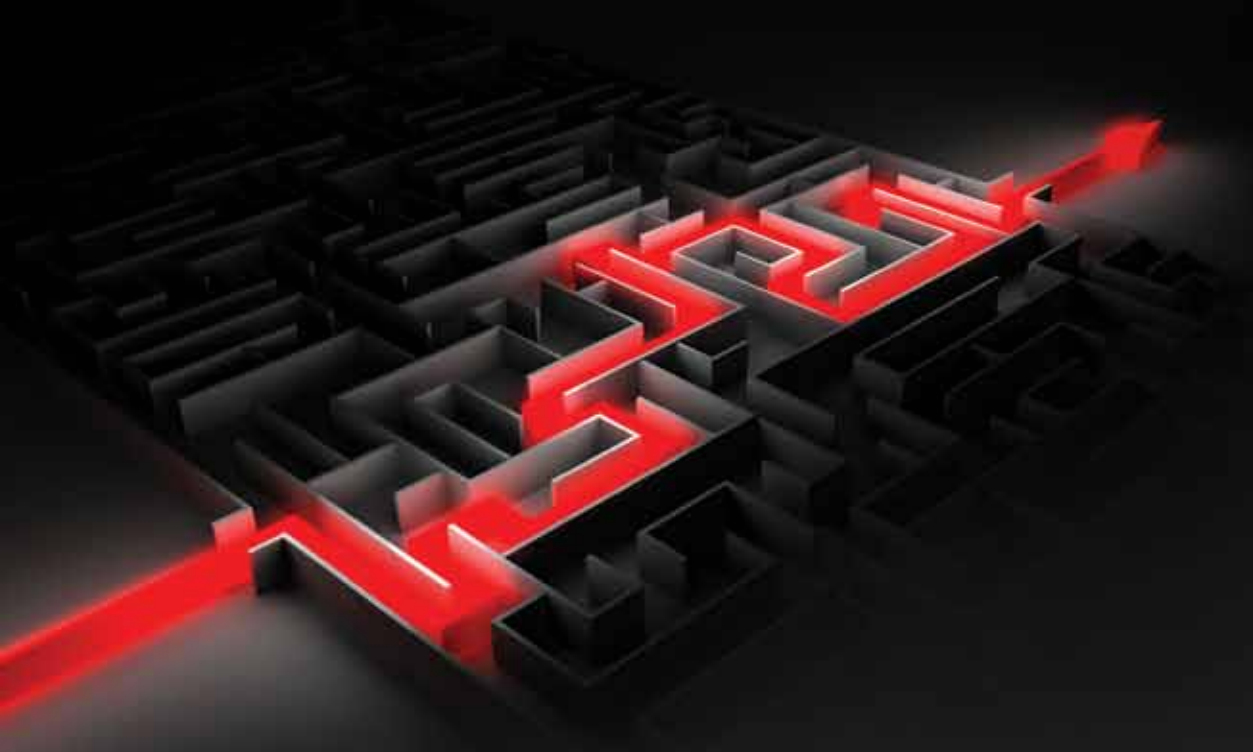

Charting Maryland's Economic Path

Discovery, Diversity & Opportunity

A Five Year Strategic Plan

Contents

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Introduction

Economic growth comes to places where discovery is put to work. Entrepreneurship in companies of all sizes, ages, and industries is the engine of this translation. Innovation – new products, new processes, and new ways of doing things – drives company competitiveness and expansion. Fast growth companies of all ages are responsible for the majority of job creation.

At the beginning of the second decade of the 21st century, U.S. and global economies are slowly emerging from a profound recession. There is debate as to what the next several years will bring: a sustained trough of low growth, a double-dip, or a surprisingly robust rebound. Maryland has been spared the worst of the recession's impact, yet of course is inexorably tied to a global economy. How do we best position the state? Based on its conversations with businesses across the state and analysis conducted specifically for this process, the Maryland Economic Development Commission has developed an economic development strategy for the next several years. The Commission spent over a year organizing "town hall" type meetings and hearing from residents and businesses across the state. We examined a variety of data and information to gauge the state's performance and prospects. Our conclusion: Maryland enjoys attributes that have served as a bulwark against the worst ravages of the recession, and much more to the point of this strategic plan, provide the basis for meaningful growth and prosperity ahead. The commission's focus in this plan is to "connect the dots" between government and business, among diverse state assets, and among regions. Our aim is to foster and encourage a robust entrepreneurial climate in Maryland.

MD economy snapshot	2010	2011	2012	2013	2014
Personal income growth projection	2.9%	5.6%	5.1%	7.2%	6.6%
MD unemployment rate	7.4%	7.3%	6.5%	5.9%	4.8%
Net migration (000):	28.4	21.3	2.9	-2.7	-4.0
Single-family permits	9,309	19,702	20,132	28,865	29,859
House Price Index (1980Q1=100)	433.9	417.4	420.9	435.4	461.9
Median household income: **$64,186 MD** vs. $49,777 US (*Source: Census, 2008)*					

Source: Moody's Analytics January 2011

Most current indicators, such as unemployment and personal income growth, show Maryland outperforming national rates. Indicators such as net migration and housing permits and price index suggest steady improvement for the State by 2013.

Acknowledging the significance of a broad set of factors affecting Maryland's future, this document cannot and does not cover every salient issue connected with economic development. We have organized the content of this plan on the premise that Maryland has a technology-driven economy, and focused on four leading strategies that build on our strengths. These four resonated most strongly with the Commission, and grew out of its meetings with businesses and citizens around the state.

Four Strategies for Maryland

Position Maryland for growth through accelerating efforts to sustain a knowledge-dependent, global, entrepreneurial economy driven by innovation.

Build on and protect leading drivers of economic growth such as life sciences, information technology, and federal and military-related economic activity.

Embrace regional and economic diversity by investing in and transforming Maryland's traditional sectors of agriculture, manufacturing, and tourism.

Make it easy to do business and live in Maryland through government (state, local and federal) transparency, predictability and automation.

Guiding Principles of the MEDC Plan

- Technology-driven economies such as Maryland's can bring benefits across all sectors and regions; there are more connections between high visibility, "hot" industries like biotech and more "traditional" ones like manufacturing and agriculture than we often realize.

- While there are a few recommendations in this plan that would require significant public investment, many address existing work being done in the state that could be re-positioned or expanded without major new funding. The Commission supports careful assessment of existing funding for economic development, with re-allocation where beneficial. Private sector engagement (next bullet) also plays a role.

- Private investment is a necessary and critical ingredient, whether seeking major investments in infrastructure (broadband, airport) or providing patient capital to emerging firms. Funding from public sources will be limited for some time to come, and capital-intensive projects need to be carefully vetted and targeted.

- Meaningful collaboration between and among industries, academic institutions, government and investors will take the state much further than any single economic development program ever can.

- Skillful execution is as important as the soundness of strategy. This plan focuses largely on strategy, though the "Make it easy to do business in Maryland" section covers some important ground regarding effective organizations.

- The true competition is global, and not next door. Foreign companies are competing for a share of our U.S. markets. Developing markets are growing rapidly, and developed economies are investing in many of the same sectors we are.

Maryland's economy runs on technology and innovation, which generate the resources that enable companies and people to purchase goods and services in all sectors of the economy, and contribute to the public treasury that underwrites the educational, public safety, environmental, health, and other services expected from government. The economy encompasses our leading high visibility "tech" sectors – life sciences and cybersecurity – as well as less obvious ones, like agriculture.

Maryland's foundations are strong, but in some cases not fully developed, or in the case of the federal presence, carry with it some vulnerability. The state's competitors in the U.S. and abroad are making investments that have enabled them to catch up to and surpass Maryland's performance. The Maryland Economic Development Commission has taken stock of these foundations, looked at competitors, and developed strategies for capitalizing on them. This strategic plan considers how best to capitalize on the full range of our economic diversity.

Maryland benchmarked against other states

Maryland is often benchmarked against states in the Middle and South Atlantic regions; they include New Jersey, New York, Delaware, North Carolina, Pennsylvania, and Virginia. These are among the comparison states in the analysis completed as part of the strategic plan development. Leading innovation-driven states outside the region were added: California, Colorado, Connecticut, Illinois, Massachusetts, Minnesota, and Washington, for a total of 14. National rankings were also examined where available and applicable. The benchmarking focused on measures that are most relevant to Maryland and its comparison states. The first strategy in this plan – "Positioning Maryland for growth"- addresses most of the metrics that were examined in the benchmarking analysis.

Overall, the benchmarking confirmed the strong influence of the federal government on Maryland's economy, one that is primarily positive, with some negative consequences. The federal government has served as a recession buffer, generator of high incomes and wealth, and a magnet for international talent. Its presence may also account for the comparatively lower volume of industry-funded R&D in the state (overall R&D ranking is very high), and more modest commercialization. The benchmarking also suggested areas that need more attention: stimulating industry R&D, growing our own talent, turning R&D riches into business success, fostering an entrepreneurial climate, and continuing investment in education, infrastructure and economic development.

First Strategy.

Position Maryland for growth

By supporting initiatives that are innovation-based and technology-driven

The "New Economy" is knowledge dependent, global, entrepreneurial, rooted in information technology and driven by innovation. Positioning the state for growth requires supporting the building blocks, or foundations, of an innovation-based economy. These include: *discovery (R&D), commercialization of new knowledge, entrepreneurship, human capital, financial capital, physical capital and quality of life.*

FOUNDATION #1. Sources of discovery and innovation

Why it's important.

Innovation and collaboration are critical success factors in today's global economy. Research and statistical analyses of technology industry locations and growth have concluded that a strong base of research and development (R&D) is the essential foundation for building an innovation-based economy. Usually, this intellectual infrastructure takes the form of a research university, but it may also include a federal laboratory or large research-intensive companies that are leaders in their industry ("pillar" companies). Fast-growing companies ("gazelles") thrive in places of all sizes that have a cross-disciplinary R&D base. Building on the state's foundations, this strategy aims to pull together the elements to make Maryland a regional innovation cluster.

Maryland's profile

Maryland is a leader in overall R&D expenditures; federally-performed and federally-funded related R&D activities drive the high ranking. Maryland's 92 federal civilian agency and military research centers are the cornerstones of its technology prowess. The National Institutes of Health (NIH), the Food and Drug Administration (FDA), and military medical commands anchor the biosciences cluster and federal intelligence agencies provide the raison d'être for the cybersecurity cluster. The move of the Army's Team C4ISR[1] to Aberdeen Proving Ground not only adds thousands of new jobs, but also moves the locus of $10 billion in obligation authority from Ft. Monmouth, New Jersey to Maryland. C4ISR intensively manages 128 major defense programs to acquire, field and provide new equipment training on C4ISR systems.

R&D by industry as a share of the state's output is weaker than other leading innovation-driven states and is dependent on the federal government, which funds 30 percent of it. Competitive analysis of market opportunities, market share-winning strategies and execution and financial partnerships are needed to stimulate more commercially-oriented corporate R&D.

According to the National Science Foundation's 2010 Science and Engineering Indicators:

- Maryland ranks #3 in the share of its economic output that is attributable to R&D.
- Maryland ranks #1 in federal R&D funding per civilian worker.
- Maryland ranks #19 in industry-performed R&D per civilian worker.

[1] Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance

- Maryland ranks #6 in the percentage of industry-performed R&D that is federally funded.
- Maryland ranks #1 for academically-performed R&D per civilian worker; 30 percent of the academic R&D is federally-funded, the 6th highest share in the country.[2]

The Commission's recommendations on discovery and innovation

1. **Hold on to federal civilian and military market share in R&D, especially as total spending declines.**
   Defend and opportunistically expand Maryland's share of federal spending on federal facilities, R&D, higher education, technology, facilities-related services and training, by effectively employing Maryland's federal delegation and private/public partnerships such as the Federal Facilities Advisory Board.

2. **Support excellence in and collaboration among the state's research universities.**
   Establish a retention and recruiting fund targeting innovators, available to both public and private universities in the state. Candidates would be chosen for their commitment to global challenges in key sectors and disciplines (such as space, life sciences and cyber), and to commercialization.
   Pursue working agreements among Maryland universities that lead to collaboration in recruitment, shared infrastructure, joint appointments, and links to federal laboratories.

3. **Intensify research and development that can lead to new business formation in a significant Maryland sector, cybersecurity.**
   Establish a National Center of Excellence for CyberSecurity to incubate new cybersecurity technology products, test hardware and software, conduct security audits, share information, support education and training at all levels, and advise public policymakers. This effort is currently in legislation at the federal level, and if funded, would create a national center at the National Institute of Standards and Technology in Gaithersburg and enable the creation of regional centers.

4. **Improve incentives for firms conducting commercial R&D.**
   Assess Maryland's incentives for industrial market-oriented R&D, including the state's R&D tax credit and the Maryland Stem Cell Research Fund in comparison with other states' investments**.** Like Maryland, most states have tax credits for corporate R&D, but some are more responsive to company needs than others. For example, Connecticut's R&D tax credit against corporate taxes can be carried forward and is saleable back to the state, and also available for increases in company agreements with in-state universities to perform R&D.

5. **Help commercially-oriented smaller companies compete for and strategically tap R&D funding sources such as the federal Small Business Innovation Research (SBIR) program.**
   The SBIR program is the federal government's set-aside of a portion of its R&D purchases for small businesses, enabling them to develop new ideas and demonstrate proof of concept. Some states, often through their special-purpose technology affiliates (like TEDCO), are more aggressive in providing assistance to their SBIR applicants, including coaching , "Phase 0" grants to help with preparation of applications, matching funds, bridge grants between Phase I and Phase II, and

[2] Note that the Johns Hopkins Applied Physics Laboratory accounted for approximately $1 billion of the University's $1.86 billion science and engineering R&D funds in 2009.

support of transition to Phase III. Efforts in this area should not be limited to the SBIR program. (See endnote 1 for states that offer these incentives.)

FOUNDATION #2. Turning new knowledge into economic success: commercialization

Why it's important

A concentration of technology firms and research and development facilities is not enough to make an area vibrant. Economic benefit accrues to the locations where commercialization of the innovations generated by new knowledge takes place**.** Strong collaborative relationships – "connecting the dots" – among innovators and technology generators, technology-users, and services providers are required in order to connect younger firms and entrepreneurs to services, buyers, suppliers, partners, and innovations. These connections help them cut costs, expand markets, improve customer service, become more competitive and support the growth of local suppliers. The key metric for commercialization is sales, which leads to job creation.

Maryland's profile

Maryland's unparalleled research riches are not reflected in its commercialization track record. Commercialization of scientific and engineering discoveries is encouraged and supported, but efforts are fragmented. The most useful of Maryland's existing commercialization resources require deepening and, most importantly, networks among them need strengthening. For decades, Maryland has been known as a state that has all the economic development assets, but has not invested sufficient resources to make the best of them maximally effective.

- Maryland ranks second among the states in Milken Institute's "research and development inputs composite index," which combines data on federal, industry, and academic R&D funding, as well as Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) awards. *(See Endnote 2 Milken)*
- Maryland ranks 17th in inventor patents, the first step toward commercialization of discoveries. *(See Endnote 3 ITIF/Kauffman)*
- Maryland ranks 41st in average annual growth of high technology firms and 20th in formation of high technology establishments *(Milken)*

Ohio Third Frontier

Ohio Third Frontier supports an integrated array of research, commercialization, entrepreneurship and talent development programs aimed at catalyzing the growth of existing and emerging industry clusters by:

- Increasing the quantity of high-quality research that has commercial relevance to Ohio companies;
- Expanding access and availability of investment capital to create, grow, and attract technology-based enterprises;
- Growing and nurturing an increasingly experienced pool of entrepreneurial management talent; and
- Addressing the technical needs of existing companies pursuing new products and production processes.

The Commission's recommendations on commercialization

1. **Reinvigorate and bring critical mass to Maryland's commercialization resources.**
   Invest in existing commercialization vehicles, knit them together, and align them with state and federal initiatives. A few key resources include:
   - University of Maryland's Maryland Industrial Partnerships Program (MIPS), which pairs University System of Maryland faculty and graduate students with companies.
   - TEDCO's Maryland Technology Transfer and Commercialization Fund, which provides funding for Maryland companies that wish to develop technology-based products and/or services.
   - The Maryland Manufacturing Assistance Partnership, which in partnership with the federal government helps manufacturers identify new ways of doing things.
   - Regional technology councils' commercialization-focused networking efforts.

2. **Bring needed capital to commercialization efforts.**
   Launch InvestMaryland, the proposed state financing initiative that would provide $100M of capital to flow into the Maryland Venture Fund and regional venture firms, in turn unleashing private equity in-flows to promising Maryland firms. The initiative would also serve as a mechanism for greater collaboration between public sector efforts and the investor community.

3. **Further develop an innovation cluster by integrating, cross-fertilizing and accelerating commercialization activity in Maryland's incubators, research parks and shared research/development/testing facilities.**
   - Establish connections with global partners such as Baltimore's Emerging Technologies Centers' relationship with Ireland.
   - Develop in-house incubator venture funds such as that at Georgia Tech.
   - Co-locate the incubation of new firms and more mature innovation-driven companies and firms in diverse industries.
   - "Incubate" companies new to the United States or the region, providing a transitional location from which they can organize market entry – a "soft landing".
   - Share operating costs with local sponsors for incubators that meet best practices standards.

4. **Leverage the federal laboratory presence in the state.**
   Help companies enter into Cooperative R&D Agreements (CRADAs) and Space Act Agreements (with NASA) with federal labs. Collaborate with federal laboratories in the state to expand use of TEDCO as a commercialization agent. TEDCO now supplements technology transfer and technology insertion activities for the Naval Air Warfare Center at Patuxent River and Ft. Detrick. The CyberMaryland strategy recommends using TEDCO for this purpose.

5. **Encourage small and mid-sized firms to expand into domestic and global markets and take advantage of broader networks of customers, suppliers and partners.**
   Increase funding of the existing Partnership for Workforce Quality program (PWQ) and allow the fund to share the cost of obtaining expert consulting on target markets, marketing strategies and key management issues. Revisit state and federal size standards that may act as disincentives to growth.

6. **Provide aggressive state support to Maryland bidders on federal contracts.**
   Give special attention to underrepresented firms and companies outside the metropolitan corridor to expand access to federal contracting, both as primes and as team members, and provide commercialization knowledge and resources. Other states have made matching commitments to aid their companies in winning SBIR Phase III awards from federal mission agencies.

FOUNDATION #3. Entrepreneurship: the fuel driving a dynamic economy

Why it's important

Fast growth ("gazelle") companies will generate much of the new private job growth. Maryland lags in innovation-based start-ups and employment growth from young companies. Steady federal customer availability has tended to act as a drag on entrepreneurial culture and dampen the community's tolerance for risk-taking and failure. Entrepreneurs and managers skilled in start-ups and new ventures emerge from business-launching efforts, whether or not the initial business succeeds (or is acquired).

Entrepreneurial and commercialization support should be rationed with the same rigor as financing programs. If they are of high enough quality to make a difference, the services must be focused on the most promising candidates for growth.

Maryland's profile

Maryland presents a conundrum. On the one hand, it ranks only in the middle of leading innovation states in entrepreneurial activity, but on the other, it is among the leaders in fast-growing companies. See Appendix D for a profile of Maryland's fast-growing firms. Some states have taken a more rigorous and focused approach to building an entrepreneurial culture and surrounding promising enterprises with the integrated resources they need to thrive, starting at the pre-revenue stage. Federal and state regulations aimed at giving small, minority, and women-owned businesses entry into public sector contracts may be unintentionally having the effect of locking them into subcontractor status and limiting growth, and need re-examination.

- Maryland ranks fourth in fast-growing firms.
- Maryland ranks 27th in employment growth in young (<3 years) companies.
- Maryland ranks 33rd in the percentage of citizens starting companies (ITIF/Kauffman).

Transformation Business Services Network (PA) and KTEC PIPELINE

State programs to support entrepreneurship have grown more sophisticated and focused on entrepreneurs whose ventures are past the start-up phase and have potential for significant growth. The Transformation Business Services Network (TBSN) of the Ben Franklin Technology Center of the 32-county area of Central and Northern Pennsylvania is centered at State College and provides no-cost assistance including market research, feasibility studies, hiring strategies, pricing, test marketing, and negotiating strategic alliances. The program's four field officers, all seasoned business professionals, have a portfolio of about 12 companies each and spend 75% of their time directly with the companies. The Kansas Technology Enterprise Corporation's PIPELINE program, recently spun off as a non-profit, annually selects a dozen high potential entrepreneurs for intensive mentoring and learning from peers and experts.

The Commission's recommendations on entrepreneurship

Note: Recommendations in the commercialization, human capital and finance sections will have impact on entrepreneurship.

1. **Recruit and retain leading researchers and academics whose work generates significant business creation potential.**
   Establish the Maryland Innovation Partnership to recruit new "superstar" university innovators who are committed to commercialization of their discoveries in areas of economic development importance to Maryland. Support the entrepreneurial efforts of these and other faculty and graduate students.

2. **Build a culture that celebrates entrepreneurship, understands failure, and embeds promising start-ups and young companies in an ecosystem of support necessary to grow from small to medium-sized.**
   Include in the network business school faculty and student teams who can help companies with key strategic and operational issues. Review regulatory rules and processes that may hamper the dynamics of business creation, such as ease of incorporation and licensing and ease of bankruptcy filings. Support entrepreneurs' strategic plans to grow by acquisition, including MBE firms pursuing mergers or sale of their businesses (also see fourth strategy).

3. **Focus support on companies with the potential for significant economic development impact.**
   Connect these gazelles – fast growth, high impact firms – with the experience and capital that will support their growth. The Maryland Biotechnology Center (MBC) is organizing an effort to mentor firms by linking seasoned entrepreneurs, risk capital, and integrated support from state programs. Expand this approach to other industries.

4. **Attract and welcome immigrant entrepreneurs.**
   The Kauffman Foundation cites a report that found nationally, from 1995-2006, one-quarter of all technology and engineering companies were founded or co-founded by immigrants. (See Endnote 4) Work with federal partners to ensure that Maryland's immigrant entrepreneurs can become U.S. citizens. Educate both public and private sectors regarding market opportunities represented by Maryland's immigrant communities.

FOUNDATION #4. Human capital: the key ingredient

Why it's important

Human capital is the key driver of growth and innovation. People make imaginative leaps and connect disparate ideas to create new knowledge, or plug away at meticulously understanding how things happen or can be made to happen. Entrepreneurial people, supported by other people, help figure out how to put knowledge to work in a way that will serve other people's needs and drive purchasing decisions. Most fundamentally, employees – people – are the key ingredient for success of innovation-driven companies.

Maryland's profile

Maryland enjoys one of the most highly educated populations in the nation, but is dependent on the in-migration of well-educated residents – "knowledge workers" – from elsewhere in the U.S. and abroad. Maryland's working age population is projected to begin declining in 2015 while job growth is projected to be robust; the state needs to hold on to its graduating college students and current workforce and continue to attract highly educated and skilled residents from elsewhere. Surveyed Maryland business owners in all industries are looking for skilled workers, whether they are machinists or laboratory technicians, and their ranks are being joined by BRAC- and cyber security-driven employers.

- Maryland ranks second nationally in the percentage of the population with graduate or professional degrees. (Census)
- Maryland ranks 24th in the percentage of the population with at least a high school degree. (Census)
- Maryland ranks 5th in the average years of schooling of those who have moved to the state from other parts of the U.S. (ITIF/Kauffman)
- Maryland ranks 10th in the average years of schooling of those who have moved to the state from outside the U.S. (ITIF/Kauffman)

The Commission's recommendations on human capital

1. Grow our own workforce.

- Explore innovative ways to increase access to Maryland's community colleges for 2-year academic programs and for re-tooling of skills for older workers. Target support to public/private partnerships focused on local economic development needs and opportunities. Consider tax credits to firms – perhaps in targeted sectors - hiring Maryland-educated individuals.

- Support the implementation in Maryland of the new nationwide Common Core State Standards in public education, which are designed to assure that students have acquired, at each grade level, the knowledge needed to meet the requirements of higher education institutions and employers upon graduation. Advocate results-proven investments and accountability in education from early childhood through higher education in schools across the state. Investments in teacher training and retraining will be required.

- Intensify support for STEM (science, technology, engineering, and mathematics) education throughout the state. Implement CyberMaryland calls for alignment of Maryland's educational programs to meet demand for cybersecurity talent, including focusing academic efforts on implementing the recommendations of the Governor's STEM Task Force, and developing an academic cybersecurity curriculum for postsecondary degree or certification at two- or four-year institutions. Implement the expansion of the Project Lead the Way (PLTW) Biomedical Sciences high school program, as called for in BioMaryland 2020.

2. Keep educated people in the state.

Expand the successful Baltimore Collegetown Network to other Maryland regions. The program provides a model for other regions for connecting higher education institutions to promote student

interaction and familiarity with the community's assets, internships in local businesses, and student access to multiple campuses and community cultural, entertainment and shopping centers. The efforts are focused on enhancing student experience and retention after graduation. Expand internships to further tie students to employers and to Maryland. Repatriate alumni who have moved away, using alumni networks. Retain retiring federal workers.

3. **Allow the market to drive workforce training.**
    - Increase funding for Partnership for Workforce Quality, which offers employers flexibility in training sources and content.

    - Establish a Maryland Bioscience Workforce Skill Development Fund, as called for in BioMaryland 2020, to respond to the specific needs of the bioscience industry. Develop bioscience industry scientific and entrepreneurial talent by establishing the Maryland Bioscience Talent Bridge Program, which would enable bioscience companies to employ postdoctoral students and recent Ph.D.'s. Encourage Maryland universities to offer and expand Professional Science Master's programs (PSM), which combine scientific and business training.

    - As called for in the CyberMaryland report, address the growing demand within the federal government and private companies for skilled workers eligible for security clearance by working with educational institutions and adopting training measures such as: undertaking a skills gap analysis to identify specific training needs in cybersecurity work; retraining workers with obsolete skills in areas that are in high demand, including all disciplines of cybersecurity; and creating a public-private partnership jobs network for recruitment and training.

Anne Arundel Community College Cybersecurity Curriculum

Located near the National Security Agency (NSA), Fort George G. Meade and the National Cyber Command Center, Anne Arundel Community College (AACC) was the first community college in the country to develop a cybersecurity curriculum and the first certified by NSA and the Committee on National Security Systems (CNSS) to "map" its courses to the National Training Standard for Information Systems Security Professionals 4011 standard. Subsequently, NSA/CNSS also certified AACC's curriculum to map to the 4013 standard for system administrators. The Information and Cybersecurity program offers an Associate of Applied Science (AAS) degree, certificate and stand-alone courses that prepare students for entry-level positions in the cybersecurity arena.

FOUNDATION #5. Financial Capital: money to grow

Why it's important

In addition to ideas, workers, and strong management, innovation-driven companies, like all others, need money. In the case of innovative companies, the capital being sought must come from individuals and institutions that are well accustomed to dealing with technology, market, management, and production risks. These financiers often become closely involved in the operations of the company, adding expertise and relationships along with financing. When the product development cycle is a long one, substantial equity capital as well as debt must be obtained. Public finance mechanisms provided by

the state are not intended to supplant private capital, yet can play a critical role in reducing risk for the lender or investor, and lowering the cost of capital to the company.

Current Conditions

The recession was spawned by the crisis in capital markets, and its aftermath continues to be studied and debated. Venture capital investments decreased dramatically during the past two years. A painful "deleveraging" is taking place across a broad spectrum of consumers and smaller businesses. Demand for debt among small businesses is down, and lenders' underwriting criteria have become tougher. The commercial real estate crisis has brought additional stress to commercial debt and equity transactions, for firms in real estate related industries, and where real property is integral to assessing collateral value. As consumer and business-to-business demand improves, capital markets will shift to meet the new conditions. State financing programs should be flexible enough to anticipate and move with market conditions, especially in these volatile times.

The Commission's recommendations on financial capital

1. **Create financing mechanisms that capitalize and create equity funds that target Maryland companies, particularly those on track to become gazelle firms**.

   InvestMaryland is a major step in this direction and should be implemented promptly. The program would raise investment capital to be allocated to the Maryland Venture Fund and to venture capital firms, which would make equity investments in promising Maryland-based business ventures.

2. **Bring equity capital to start-up and very young companies.**

   Tap Maryland's investment and lending community to keep track of market trends and adapt the Challenge Investment Program for pre-seed funding. Expand the regional "angel" networks for early stage companies using various mechanisms, such as organizing investment fairs and co-investment networks and enlarge the pool of incentives for investment.(see #3) Enhance access to financing for acquisition, particularly by small/medium-sized and minority- and women-owned businesses.

3. **Protect and enhance the most effective state economic development financing tools.**
   Assess existing financial incentive programs for their efficacy, ease of use, market demand, and for their competitiveness against competing states. At minimum, maintain consistent funding levels for those programs with highest value. Re-structure those that have value but need to be modified to meet changing market conditions.
   - Re-capitalize the "Sunny Day" fund and restore DBED discretionary funds (MEDAAF) to historic funding levels in order to compete effectively in retaining Maryland firms, and recruiting firms and extraordinary research centers.

   - Make the Maryland R&D Tax Credit permanent and refundable or transferrable. Connecticut's R&D Tax Credit cited in BioMaryland 2020 provides an example.

- Expand the high demand Maryland Biotechnology Investment Tax Credit and consider similar incentives for investors in companies in other key sectors.

4. Explore innovative sources of funding for state financing programs and projects

Using Long-term Public Financing for Innovation Investments

Since 2002, voters have twice approved the issuance of general obligation bonds for the Ohio Third Frontier Project described in FOUNDATION 2 for the public purpose of "research and the resulting product innovation, development, and commercialization." A 2009 independent study by SRI International found that the state's expenditures of $681 million through 2008 had generated $6.6 billion of economic activity, 41,300 jobs, and $2.4 billion in employee wages and benefits, a nearly $10 return on every dollar of the state's investment. Based on this performance, in 2010 voters approved a second bond-funded investment of $700 million.

FOUNDATION #6. Physical Capital: Infrastructure investments can bring big pay-offs

Why it's important

In order to foster the growth of innovative companies, Maryland must have locations that are: competitive in cost and quality; well-served by good, uncongested roads and convenient direct air service to both domestic and international destinations; linked to high speed telecommunications networks, with redundant service if possible; accessible and attractive to the maximum number of possible employees and customers; and, as needed, provided with access to specialized facilities that can be exploited by multiple users.

Targeted physical infrastructure investments can have an outsized impact on business growth. They not only bring the upfront capital investment and employment, but if targeted correctly can jump-start new economic activity.

Maryland's Profile

Broadband

Coverage has been expanded in recent years, and the One Maryland Broadband Network has made significant inroads in mapping broadband availability levels throughout the state. More than $115M was recently awarded to Maryland in competitive federal grant funds to extend broadband service. The funds will build more than 1,200 miles of high-speed Internet line and extend Internet access to more than 1,000 anchor institutions such as schools, government offices, and libraries. The new network will connect the state from Western Maryland to the Eastern Shore, reaching 2 million homes and 443,000 businesses. Maryland Broadband Cooperative is a member-owned and operated universal access, fiber optic network designed to deliver an advanced, world-class broadband network across the rural communities of Eastern, Southern and Western Maryland. The cooperative is supported by its members, who will provide "last mile" service to homes and businesses.

Port

The Port of Baltimore's volumes are showing improvement after declines during the recession. While worldwide container port handling is projected to grow, global competition among ports is intense and emerging markets such as Brazil are building new infrastructure. Investment in the U.S. port network is anticipated to increase, with private domestic investment and public-private partnerships the

predominant routes. Maryland's port is well-positioned in this regard, with pending addition of berth and cranes, and management provided by Ports America. The deeper berth will allow larger ships once the Panama Canal expansion is opened in 2014.

Many investors are bullish on the renewed significance of rail as a less expensive, more carbon neutral alternative to the prevailing freight transportation mode, trucking. Ports with multi-modal capabilities will be most competitive as overall traffic picks up post-recession.

Airport

The concept of "air cities," which are multi-modal concentrations of complementary uses (office, warehousing, hospitality, etc.) is increasingly the global trend for major airports. They typically require a carrier hub, international service, and a supporting network of roads, rail and transit systems. Memphis and Dallas/Fort Worth are domestic examples of airports moving in this direction.

Access to a major airport – with a broad variety of direct service domestically and internationally – is increasingly a key component of business location decision-making. Dulles and Philadelphia represent the two options for direct overseas travel from Maryland, and travel time to these airports represents a disadvantage for some Maryland locations – and impacts existing businesses requiring extensive air travel.

BWI's passenger service has been steadily growing, and while Southwest Airlines does not use the traditional "hub and spoke" model of air service, BWI is one of four Southwest primary locations. Southwest generates slightly more than 50 percent of the total traffic at the airport, with AirTran in second place. BWI's strength is in serving domestic coach passenger traffic at a reasonable cost. The recent announcement of Southwest's acquisition of AirTran brings greater potential for developing meaningful international service at BWI.

Roads and Transit

Efficient movement of people and goods contributes significantly to the state's competitiveness. Investments are being and will continue to be aligned with the growth of key economic generators such as BWI-Marshall Airport (the Inter-county Connector), and BRAC-related improvements in Southern Maryland, Northeast and Central Maryland.

In addition to stimulating interest in alternative sources of energy, the end of inexpensive oil has focused attention on reducing automobile use without sacrificing mobility. Building out Maryland's metropolitan transit systems, connecting those systems to each other and national networks, and enhancing rural connections will continue to be high priorities in the state's transportation planning.

Energy

Projected oil price volatility portends many potential, profound implications to the economy, including the commercialization of renewable energy sources, changes in how businesses manage their supply chains to contain fuel costs, more investment in energy efficiencies across a broad spectrum of industries, and increased interest in transit. Energy requires long-term capital investments and a consistent regulatory environment. Both factors, by necessity, directly involve federal and state government.

The region's comparatively higher cost of energy raises the ante on energy as an economic development issue. Limited in-state generation capacity and a heavily utilized regional electrical grid drive some of the higher costs. New multi-state transmission lines are proposed by utilities as well as a regional grid operator to meet projected demand; two require Maryland Public Service Commission approval.

Renewable energy has seen steady growth in the past decade, particularly in the solar and wind areas. Continued development of these industries requires clear and consistent federal policy in order to bring longer-term investors and capital to the table. State support of these emerging sectors, though unable to supplant national or global policy, can influence where investments are made – in Maryland, or elsewhere.

The Commission's recommendations on infrastructure

1. **Provide robust broadband access to and utilization in every corner of the state.**
   Expanding broadband is crucial for increasing Maryland's Internet access and capacity, and will help create jobs, improve public safety, increase educational opportunities, improve health care delivery and advance infrastructure for BRAC. The next step in broadband development is to capitalize on the recent federal funding award (above) and attract additional private investment to provide greater capacity.

2. **Maintain and expand dredging for larger vessels, and seamlessly link port infrastructure investments with multi-modal transport.**
   The Port should continue to pursue partnerships that provide for private and public investment in port and multi-modal infrastructure.

3. **BWI airport should fully hold its own against Philadelphia and Washington airports.**
   BWI should continue to pursue expanded international service. Long desired and stymied by market constraints, the opportunity appears more realizable as the dominant carrier Southwest Airlines has recently taken the first step through its acquisition of AirTran.

4. **Maryland needs a comprehensive highway and transit infrastructure strategy.**
   The strategy should identify long-term sources of funding, both traditional and innovative, including public/private partnerships.

5. **Increase Maryland's overall energy generation capacity and its transmission capacity.**
   Continue to encourage development of the proposed Calvert Cliffs nuclear project as a significant long-term contribution to energy capacity in the state. Intensify investment in renewable energy sources and in energy conservation technologies. Ensure that grid and transmission infrastructure can deliver what is needed to meet overall demand for the long run.

FOUNDATION #7: Quality of life

Why it's important

A wide range of location and investment decisions by both businesses and individuals are driven by quality of life considerations. Employers need to be confident that their employee recruitment efforts

will be aided by the attractiveness of the state as a place to live. Quality of life also profoundly affects the choices made by retirees to move to or stay in Maryland. Maryland consistently ranks highly in measures of quality of life.

Maryland Profile

Public education quality figures largely in decisions by current and future employees to settle in Maryland. (*See Human Capital for strategic priorities in this area*.)

The health of Maryland's waters – from the precious Chesapeake Bay to the wild rivers of Western Maryland – has direct economic impact on key natural resource-related industries as well as on the attractiveness of the state for residents. Recent recommitment by federal and multi-state partners is most welcome.

The resources the state collects from its residential and business population are expected to generate efficient, high quality public services, including – in addition to education and environmental/natural resources protection – public safety, multi-modal mobility, health services, and care for vulnerable citizens.

The Commission's recommendations on quality of life

1. **Enhance and promote Maryland's desirability as a place to live for existing residents, newcomers and retirees.**

2. **Advocate for high quality public education.**
   Support the implementation in Maryland of the new nationwide Common Core State Standards in public education, which were designed to assure that students have acquired, at each grade level, the necessary knowledge to meet the requirements of higher education institutions and employers upon graduation.

3. **Assure efficient mobility, both by car and transit.**
   Maryland needs a comprehensive highway and transit infrastructure strategy, with long-term plans for funding.

4. **Protect the environment.**
   Continue multi-state/federal initiatives to restore the Chesapeake Bay, focus growth in places already served by infrastructure, and develop increased capacity for alternative energy generation and use.

5. **Protect and promote town centers, arts and cultural amenities, and heritage.**
   Continue to support the Arts & Entertainment District Program which provides support for enhanced marketing and promotion of the districts across the state.

6. **Do the public's work efficiently.**
   Continue efforts to manage state government for maximum effectiveness.

Second Strategy.

Build on existing strengths

In key sectors, such as life sciences and cybersecurity, and the emerging sector of earth, space, and green technologies

Maryland has long been known for preeminence in life sciences and, particularly in the last decade, cybersecurity. Both the federal government and university foundations of these sectors and growth of private companies have been economic development priorities for Maryland. While concentrated in the central corridor of the state, they are growing in presence in all its regions. Each requires ongoing focus and investment in order to maintain primacy among growing ranks of competitors within the U.S. and around the world. This section summarizes Maryland's strategies for each sector and identifies opportunities for emerging sectors. It highlights the extent to which Maryland's competitive industry strengths are connected to the federal government.

Life Sciences and Health Care

Thanks to the presence of the National Institutes of Health and its university and private sector grantees, Maryland is one of the largest bioscience research environments in the world and one of the largest and fastest-growing bioscience company clusters in the country. Biosciences represent a large and fast-growing sector that includes a wide range of job-producing manufacturing, service, and research activities – and a diverse and global marketplace ranging from diagnostics and therapeutics to medical devices to bio-agriculture and bio-energy. Exciting opportunities are emerging at the intersection of life sciences and information/systems technology, another of Maryland's strengths, in fields like genomics, proteomics, medical informatics ranging from home-based disease management to computer-assisted surgery and management of health care. Maryland companies in these fields are not only speeding drug discovery but also, with the federal government's strong support, improving access to effective and efficient health care.

Cybersecurity

The foundation of Maryland's status as the epicenter of cybersecurity is the presence of the Department of Defense's lead agency for information security, the National Security Agency, as well as the Intelligence Advanced Research Projects Activity, the National Institute of Standards and Technology, Defense Information Systems Agency headquarters, and the new U.S. Cyber Command, a consolidation of computer defense operations. Maryland's large federal contractors (including its universities) and over 5,000 smaller computer systems design firms are winning substantial shares of defense and non-defense federal agencies' purchases, which are projected to reach $98 billion by 2013. The closely-related commercial markets served by Maryland companies are expected to surpass the government market as more entities such as universities, banks, financial service companies, and online retailers address the need for information security.

To grow each of these sectors, the basic building blocks presented in Strategy One require customizing. The Commission fully supports the recommendations set forth in the BioMaryland 2020 and CyberMaryland plans.

The actions recommended in DBED's strategic plans for the Life Sciences (2009) and CyberSecurity (2010) are summarized in the following chart that maps them to the basic building blocks.

Overview of Strategic Priorities for Maryland's Economic Development: Competitive Industries

(From DBED strategic plans for key sectors: *actions already taken are italicized)*

Strategies	BioMaryland	CyberMaryland	
DISCOVERY INFRASTRUCTURE			
Federal labs R&D	Establish the Maryland Federal Lab Engagement and Collaborative R&D program		
Universities R&D	Support capital budgets for university and community college bioscience research		
	Promote investment in emerging fields of bioscience R&D		
Corporate R&D			
Cross-sector collaboration	*Establish Maryland Biotechnology Center* Give priority to info-bio fields such as bioinformatics, genomics, proteomics, medical informatics, health informatics	Develop a catalogue of cybersecurity work being done throughout the state to foster research collaboration Give priority to health applications of cybersecurity technologies	
MECHANISMS FOR TURNING NEW KNOWLEDGE INTO ECONOMIC SUCCESS			
Commercialization resources	*Establish Maryland Biotechnology Center*	National Center of Excellence for CyberSecurity: • *Incubator* • Cybersecurity testing laboratories • Information sharing Encourage cybersecurity technology transfer from federal agencies & support commercialization	
	Strengthen technology transfer and new venture creation at universities		
	Establish Bioscience Commercialization Institutes		
	Expand the Maryland Industrial Partnerships (MIPS) program		
Meaningful supports for companies' innovation-driven growth	Access to business services	Grow Maryland companies that are focused on cybersecurity standards, certification, testing, auditing and assessment Identify future growth opportunities for Maryland *Establish a benchmark analysis of the cybersecurity industry cluster and its requirements*	
Marketing assistance			
ENTREPRENEURSHIP			
Integrated supports	Establish BioEntrepreneur Resource Program	*Cybersecurity new enterprise incubator*	
HUMAN CAPITAL			
Education	Support expansion of Project Lead the Way (PLTW) Biomedical Sciences HS program	Focus academic efforts on STEM Develop scholarships to encourage HS graduates to remain in MD for college	National Center of Excellence for CyberSecurity: • Develop cybersecurity training packets for schools • Integrate IT and data security issues with technology education at every level of schooling
Community Colleges	Promote articulation of bioscience, biotech, assoc. life sciences education across all levels of education	Develop curricula for certificate programs for cybersecurity	
Universities		Provide incentives to keep graduates in state Train teachers in cybersecurity	

Strategies (cont.)	BioMaryland	CyberMaryland
Retaining and attracting workers	Establish the MD Bioscience Talent Bridge to enable MD companies to employ postdocs and new PhDs	*Conduct a skills gap analysis* Create a public-private partnership jobs network for recruitment & training
Training	Establish a MD Bioscience Workforce Skill Development Fund	Develop training & skills updating programs to address cybersecurity industry needs Establish a relationship with DoD's Cyber Corps Program
QUALITY OF LIFE		
Public education	Support the implementation of the Maryland State Department of Education plans to achieve common (nationwide) state standards for preparing young people to successfully meet the expectations of higher education institutions and employers.	
Environmental quality	Support the implementation of the Maryland Department of the Environment plans to protect and restore the quality of Maryland's air, water, and land resources, while fostering smart growth, economic development, healthy and safe communities, and quality environmental education for the benefit of the environment, public health, and future generations.	
Affordable & value-holding housing	Support the implementation of the Maryland Department of Housing and Community Development's strategies to promote and preserve homeownership; increase and preserve the supply of affordable for-sale and rental housing provide good choices for working families, senior citizens, and individuals with special needs; and help neighborhoods, cities and towns remain rich, vibrant communities.	
Government services	Continue Maryland's nation-leading, government-wide initiatives to increase the efficiency, transparency, and responsiveness of its activities.	
FINANCIAL CAPITAL		
Early stage and venture	Expand and make permanent the R&D tax credit Expand the Maryland Biotechnology Investment Tax Credit Create the Maryland Bioscience Product Development Fund	
Growth capital	Replenish the Maryland Venture Fund Establish the Maryland Life Sciences Venture Capital Trust	
PHYSICAL CAPITAL		
Telecommunications	Robust broadband service to all parts of the state is required to support the transmission of R&D collaborations and telemedicine-related imaging	Security of public and private networks is the focus of this sector's efforts
Airport	Domestic and international collaborations, while often online, require conveniently arranged face-to-face consultations	
Specialized facilities	Access to incubators, research parks, multi-tenant commercial bioscience facilities, wet-lab space, shared equipment	
GOVERNMENT		
Taxation	See tax credit recommendation, FINANCIAL CAPITAL	
Regulation		National Center of Excellence CyberSecurity Establish Cybersecurity/IT Law Council to advise state leadership on policy issues, develop tactical enforceable state laws and regulations
Marketing	Strengthen & advance the BioMaryland brand	Market Maryland as the national epicenter for cybersecurity - create a multi-faceted communications & marketing strategy to increase public awareness

Military, Scientific and Technical Services

The economic analysis performed in the development of this strategy reminds us that Maryland holds a strong and growing competitive edge in the scientific and technical services sector that includes R&D, engineering, computer systems design and consulting services and employs over 90,000 Marylanders. Over one-quarter of the sales of Maryland companies that provide these services are made to the federal government, both military and civilian. The burgeoning Fort Meade and Aberdeen areas are the most visible representations of the markets stimulated by decisions of the Base Realignment and Closure Commission (BRAC), and future BRAC rounds may bring more opportunity. Companies serving commercial markets either solely or in addition to their federal markets abound outside the target areas of life sciences, cybersecurity and space. The special characteristics of these contractors' markets, including health information technology and competition warrants focused attention.

The Maryland Federal Facilities Advisory Board was established with purposes that include enhancing business opportunities for Maryland companies. Its plan of action for 2010 outlines critical issues that the Board will address. In the area of procurement, it calls for:

- developing initiatives to increase federal procurement expenditures in the state,
- identifying the state's federal procurement resources and developing a plan to make these resources more readily available, and
- identifying methods for better positioning Maryland businesses, especially small and minority businesses, for procurement opportunities.

Emerging Sectors: Space, Earth, and Green Technologies

Space and climate change research in the state represents significant potential for commercialization and business formation. In Maryland the space industry is anchored by federal agencies such as NASA and the National Oceanographic and Atmospheric Administration (NOAA). NASA Goddard Space Flight Center is well positioned as a leader in using space-based vehicles, instruments and research to understand the earth, and stands to benefit from increased federal funding for climate change. The impending creation of a National Climate Service at NOAA's Silver Spring campus could be a first step toward a broader interagency service overseen by NOAA that would provide an opportunity for Maryland to establish itself as a national center for climate and climate change. Today, companies in Maryland work on all these initiatives. Their activities serve as a barometer of how well the state's and the world's green initiatives in clean energy and environmental protection are working.

The Johns Hopkins University Applied Physics Laboratory is a major force in planetary and space science, producing one-of-a-kind spacecraft, instruments, and subsystems for NASA and DOD missions. The Space Telescope Science Institute, located on the Johns Hopkins Homewood campus, is the science nerve center behind the iconic Hubble Space Telescope. The Institute anticipates growth during the transition period from the Hubble to the James Webb Space Telescope.

Johns Hopkins scientists are leading astrophysical and cosmological projects to chart the origin and evolution of the Universe. Its engineers are pushing the envelope in robotics, necessary for the exploration of distant worlds. JHU researchers are using satellite data to study the public health consequences of climate change; other scientists are modeling the oceans and atmosphere to understand its underlying causes. Physicians and scientists at the Johns Hopkins School of Medicine are supporting NASA's quest for long-term human space flight.

University System of Maryland researchers are also deeply involved with space research. UMCP, UMBC and the Universities Space Research Association are partnering with the NASA Goddard Space Flight Center in the Center for Research and Exploration in Space Science and Technology, a collaborative effort to advance astronomy and astrophysics. UMBC is home to several multimillion-dollar NASA research centers, including the Goddard Earth Sciences and Technology Center and the Center for Earth Systems and Technology, joint with Goddard. In addition, UMCP's Space Systems Laboratory carries out research in support of manned space flight research.

Of special note is UMCP's Earth System Science Interdisciplinary Center (ESSIC), a joint venture of the University of Maryland and the Earth Sciences Directorate at the NASA/Goddard Space Flight Center. ESSIC's goal is to enhance understanding of how the atmosphere, ocean, land, and biosphere components of the Earth interact as a coupled system -- and how human activities affect this system. ESSIC administers the Cooperative Institute for Climate Studies, which is sponsored by the NOAA National Satellite, Data, and Information Services and the NOAA National Centers for Environmental Prediction. All these efforts involve large datasets, and require sophisticated analysis techniques.

The history of Maryland companies that are exploiting the commercial uses of space, particularly satellite-based communications, can be traced back to federal roots. The COMSAT Corporation was created by federal legislation in 1962 to serve as a federally funded and partially owned, publicly-traded corporation intended to develop a commercial and international satellite communication system. First sold to Lockheed Martin and later to various now-privatized participants in international satellite consortia, COMSAT’s progeny make up a vibrant satellite-based communications cluster in Montgomery County.

DBED is working with key partners to devise a strategy for this sector.

Third Strategy.

Embrace regional and economic diversity

And support innovation and investment in industries critical to specific regions

The Commission recognizes that the state is diverse geographically, and that state policy and investments need to be aligned with the specific needs of diverse regions. In this section we explore a few specific industries of particular significance to rural counties, and to counties with a concentration of mature industries. The primary thrust of the recommendations is consistent with the core thesis of this plan. ***Technology and innovation – be it in manufacturing, agriculture or travel and leisure - can generate transformative results on the Eastern Shore or western Maryland to the same degree they do in the Maryland suburbs of Washington or Baltimore.*** *Stronger efforts to link Maryland's federal and academic assets with its rural areas could result in greater competitiveness for landing federal facilities, R&D spending in areas such as sustainable agriculture, biofuels, water quality and efficiency, and increased private investment in these emerging technologies.*

Maryland's Regions

The areas that are typically referred to as "rural" Maryland are in fact quite diverse – they bring different assets and face different economic development challenges.

Lower Eastern Shore – Somerset, Wicomico, and Worcester Counties[3]

The Lower Eastern Shore is predominantly rural in character with $576 million of agricultural production annually, 30 percent of the state's total. Tourism is a major industry, with nearly 20 percent of the job base in accommodation and food services. Tourism is dominated by Ocean City in Worcester County, which generates over five percent of Maryland annual tourism revenues. During the summer, Ocean City's population swells to 250,000, making it the state's second largest city. Other major employers are health care, retail, and manufacturing. Over half the residents are employed in either management, professional and related occupations or sales and office occupations. The percentage engaged in farming, fisheries, or forestry is only one percent. The region's population is growing, particularly in the metropolitan center of Wicomico County, but a large and growing population is elderly. Dramatically fewer residents have college degrees than the state average, and household income is 30 to 40 percent lower than the state average. Over two-thirds of the region's residents work within the region. The region had the highest unemployment rate in the state in 2010 (9.9 percent) – the Maryland annual average was 7.5 percent.

Mid Shore – Caroline, Dorchester, and Talbot Counties[4]

[3] Comprehensive Economic Development Strategy for the Lower Eastern Shore of Maryland 2009; Maryland Department of Labor Licensing and Regulation, 2009 annual averages.

[4] Mid Shore Comprehensive Economic Development Strategy 2009; Maryland Department of Labor Licensing and Regulation, 2009 annual averages.

The largest industries in the Mid Shore region are health care, retail and manufacturing. Manufacturing accounts for over 10 percent of jobs (20 percent in Dorchester County), compared to five percent for all of Maryland, and while many of the traditional food processing firms have closed, microelectronics and telecommunications, fabricated metal parts, wire mesh and wire molded products and others have grown or been newly established. Health Care and defense contracting are the two fastest growing industry sectors for job creation on the Mid-Shore. With over 200 miles of shoreline, the region also is positioning itself as a location for environmental technology companies and to conduct environmental studies. Farming is a major economic pursuit, consisting primarily of poultry, grain and vegetable crops. Over half of the residents are employed in either management, professional and related occupations or sales and office occupations. The percentage engaged in farming, fisheries, or forestry, while five times the state average, is only one percent. The region's population is growing modestly, particularly in Caroline County, but a large (19 percent) and growing population is elderly. Significantly fewer residents have college degrees than the state average, except in Talbot County, and per capita income is 45 to 20 percent lower than the state average. Unemployment for 2010 was 9.2 percent.

Upper Eastern Shore – Cecil, Kent, and Queen Anne's Counties

The upper shore is a blend of farmland and slow growth along with industrial centers. Queen Anne's is the leading corn, soybean and wheat producer in the state and has the 2nd most area in farmland while Cecil County is 70% farmland. The region's population has grown strongly in the past decade, particularly the quasi-metropolitan counties of Cecil and Queen Anne's. Queen Anne's is the fastest growing county on the Eastern Shore. There is concern from many residents about farmlands passing into the hands of developers. Industrial centers are located along or near interchanges of I-95 at the towns of Elkton, North East and Perryville. Maryland's first slots casino opened September 2010 and employs 350 workers. The largest employer in the Upper Shore region is government, followed by retail and manufacturing. Manufacturing accounts for over 14 percent of jobs, compared to five percent for all of Maryland. Fewer residents have college degrees than the state average, and per capita income is only four to 12 percent lower than the state average. Unemployment for 2010 was 8.7 percent. Slightly over half of Mid and Upper Eastern Shore residents work within the region – 12 percent work in Anne Arundel County and six percent in Delaware.

Southern Maryland – Calvert, Charles, and St. Mary's Counties

Southern Maryland has had the fastest growing population in the state over the past 10 years, driven by growth in its military facilities and continuing outward development of the Washington suburbs. Driven by previous rounds of BRAC decisions, the Navy build-up has contributed to 19 percent population growth in the last decade. Prior to the tobacco buyout the region was largely rural, and now many farms have been subdivided and new homes built. Tobacco is being replaced with cattle and horse ranches, bees, and vineyards. The largest employer in Southern Maryland is government (the federal government employs one-tenth of the workforce), followed by transportation, trade, and utilities; professional and business services (particularly federal contractors), education and health services; and leisure and hospitality. Sixty-five percent of residents are employed in either management, professional and related occupations or sales and office occupations. Southern Maryland had the lowest unemployment rate in the state at 6.1 percent in 2010, Fewer than half the residents work in Southern Maryland – a large percentage are employed in Prince George's County and 10 percent in Virginia, the legacy of earlier BRAC decisions that moved the Naval Air Command from Northern Virginia to St. Mary's County.

Western Maryland – Allegany, Garrett, and Washington Counties

Western Maryland is the slowest growing region of the state as both Allegany and Garrett Counties have lost population over the past decade. The unemployment rate of the region remains among the highest in the state at 9.6 percent in 2010. Significantly fewer residents have college degrees than the state average, and per capita income is 25 to 35 percent lower than the state average. The region has experienced positive economic growth, however, transitioning from a resource-based economy to a more diversified job market. Once reliant primarily on manufacturing, the region's largest employer is now health care, followed by retail, government and manufacturing. Washington County has positioned itself as a prime warehouse/distribution center and has built on that business base to attract high tech companies. The region has also developed a thriving tourist industry and established itself as a premier adventure destination. Places such as Deep Creek Lake in Garrett County are frequented by many visitors every year. Garrett County is also well-known for its numerous state parks and outdoor activities. Almost 60 percent of residents work within the region, with significant out-commuters to Frederick and Montgomery Counties.

Central Maryland – Anne Arundel, Baltimore, Carroll, Frederick, Harford, Howard, Montgomery, and Prince George's Counties and Baltimore City

The Central corridor of Maryland contains the large majority of the state's population and jobs. Central Maryland benefits from its location at the epicenter of the region's federal and advanced technology marketplace and by its access to the mid-Atlantic market. The region is home to 55 federal agencies and research facilities. The region is the center of the state's cluster of major industries including health care, professional and business services and government. Yet its diverse counties include economic conditions ranging from the second highest 2010 unemployment rate in Baltimore City (10.8 percent) to the lowest in Howard County (5.5 percent). The major industry clusters in the region include a thriving biotech cluster along I-270 in Montgomery and Frederick Counties, security and information technology companies along the I-95 corridor from Washington to Baltimore, and defense and communications contractors surrounding Washington, D.C. Baltimore is the center of the financial services industry in the state, as well as transportation industries centered on the Port of Baltimore. Despite being the most densely populated region of the state, there are areas protected from growth and significant agricultural activities throughout the region. Frederick, Carroll and Harford Counties are home to dairy farms, tree farms nurseries and orchards. Baltimore County also is known for its horse farms.

An overview of regional economic development priorities set by regional councils and counties is summarized on the following chart, arrayed by the elements included in the First Strategy.

Overview of Strategic Priorities for Maryland's Economic Development: Regional Priorities

(From Regional Council and County Comprehensive Plans)

Strategies	Lower Eastern Shore	Mid-Shore	Upper Eastern Shore	Southern Maryland	Western Maryland
Discovery Infrastructure	• Engage universities and colleges in economic development, e.g. space activities at Wallops Island		• Assist Chesapeake Fields Institute, which researches and develops new crops, products and markets for farmers, in the development of a regional education and production facility	• Support the health and growth of Naval Air (Patuxent River) & Naval Surface Warfare (Indian Head) R&D and test centers • Support Energetics Technology Center • Support UMD Center for Environmental Science's Horn Point Laboratory	• Work with region's higher education institutions to develop programs that support new technology
Mechanisms for Turning New Knowledge into Economic Success	• Expand tourism linkages and opportunities • Conduct sector analysis, including agribusiness • Identify incubation projects • Pursue Foreign Trade Zone designation	• Develop CEO and peer groups to provide technical support for expanding or struggling businesses • Identify emerging high-value agricultural and food market opportunities associated with soy, common grains, and other locally-grown agricultural products • Identify opportunities for local watermen in high value aquaculture	• Investigate the potential for expanding medical economic development opportunities, including services, medical education programs, and tele-health/tele-medicine business • Investigate potential development of high tech industries and programs • Take advantage of technology transfer opportunities related to BRAC	• Expand technology transfer/commercialization activities at Patuxent River and Indian Head • Exploit opportunities for high-value agriculture • Expand global market knowledge and access • Support small business growth • Support businesses in recreation, heritage, rural and cultural tourism	• Increase exports from the region through a regional export assistance office

Strategies	Lower Eastern Shore	Mid-Shore	Upper Eastern Shore	Southern Maryland	Western Maryland
Entrepreneurship	• Sell the region to entrepreneurs • Eco and heritage tourism • Provide comprehensive space for workforce training and business development	• Establish an incubator for environmentally friendly ag/fisheries and technology-based businesses • Develop a center for entrepreneurship • Develop value-added agricultural businesses • Create an ag incubator to test & grow ethnic/niche produce, using immigrants		• Expand opportunity for entrepreneurial activities	• Support entrepreneurs through financing & procurement assistance programs, regional SBDC and other state programs • Fill gaps in the entrepreneurship support network • Help entrepreneurs market and do business internationally • Develop advisory, networking, and training programs
Human Capital	• Create a feedback loop to communicate employer needs to potential employees, educational and training institutions, including K-12 and higher education • Pursue health care training initiative • Support dual enrollment • Expand internships, co-ops, apprenticeships • Find education/training funding for middle income residents	• Continuous learning and workforce development for all • Implement the findings of task forces on day care for children and elderly and work ethic • Create opportunities to retain youth	• Investigate the potential for regional secondary level vocational education to meet industry needs • Explore possibilities of partnering to provide opportunities for business to access workforce training	• Priority to workforce preparation (education, especially STEM), revitalization (training), attraction, and retention • Retain young professionals who come to the region to work in defense-related jobs • Continue to support College of Southern Maryland academic and business-driven activities • Build on the Southern Maryland Higher Education Center's continuing ed by 11 univ in technical and teaching fields	• Human capital development and retention essential • Garrett County guarantees free tuition at community college for all high school graduates • Tri-County Council serves as Regional Education Services Agency of county school superintendents and five colleges • Project Lead the Way • Robotics a focus for K-12 and higher ed • Reskilling traditional manufacturing workforce required • School-to-work programs

Strategies	Lower Eastern Shore	Mid-Shore	Upper Eastern Shore	Southern Maryland	Western Maryland
Quality of Life	High priority: • Quality of Life assessment • Adequate land use planning	• Focus growth on towns and villages • Preserve and promote the culture and heritage of the region		• High priority to preserving farmland, forests, open space by concentrating growth in existing centers • Revitalize aging town centers • Upgrade housing quality and affordability • Vigorously enforce environment-protecting measures	• Stimulate the revitalization of downtowns • Create a regional telemedicine network
Financial Capital		• Top priority • Establish and support Eastern Short regional investor networks • Support and expand revolving loan fund for expansion of existing businesses and new businesses • Support expansion of TEDCO's Technology Incubation Innovation Fund working capital		• Utilize financial incentives to support existing business growth and attraction of new businesses	• Utilize and augment the capacity of the regional revolving loan fund to support development of technology-related industry and entrepreneurs

Strategies	Lower Eastern Shore	Mid-Shore	Upper Eastern Shore	Southern Maryland	Western Maryland
Physical Capital	• Welcome centers, interpretive centers, downtown revitalization • Provide comprehensive space for workforce training and business development • Transportation (ferry, harbors, airport, transit, roads) to link activity centers without encouraging sprawl • Expand business parks • Integrated regional process for designating industrial and commercial space • Water/wastewater – explore regional biosolids facility Energy – Increase availability of energy (including natural gas and electricity) through alternative energy sources	• Physical capital is top priority • Develop & implement regional plan to provide affordable, redundant broadband service, including the Eastern Shore regional fiber optic backbone – Wallops to Patuxent River with loops to Mid and Upper Shore • Waste water for existing and future industrial sites Strengthen trans-portation linkages • Make recommended road improvements • Expand coordinated regional transit • Acquire land and and infrastructure for business park and tech training centers development • Energy – Support the development of renewable, sustainable fuel sources Sustain the Eastern Shore Regional GIS Cooperative to enable future infrastructure planning	• Collaboratively identify infrastructure needs for business development Work with other members of the Maryland Broadband Cooperative to enhance the Upper Shore Route 213 fiber backbone and work with all public and private parties in the region to support the delivery of last-mile connectivity • Support the work of the Maryland Upper Shore Transit Authority	• Top priority is to expand the availability of land that is zoned, infrastructure-served, consistent with growth management strategies • Widen access to broadband service • Develop science and technology parks – Indian Head, in Lusby, and at the Southern Maryland Higher Education Center • Establish commuter air service as market grows	• Concentrating on reuse and redevelopment of brownfields and providing infrastructure for new greenfields development • Expand the availability of land that is zoned, infrastructure-served, consistent with growth management strategies • Intersection of E-W and N-S interstates drives distribution sector, a major force in the economy, and depends on dwindling federal and state funding • Telecommunications isolation is being addressed through the Maryland Broadband Cooperative, but needs public policy drivers • No scheduled air service between regional airports and BWI Well developed rail network needs care and expansion

Strategies	Lower Eastern Shore	Mid-Shore	Upper Eastern Shore	Southern Maryland	Western Maryland
Government and partners	• Market/brand the region • Collaborative tourism marketing • Market to retirees	• Regional brand and marketing strategy • Support ongoing efforts to grow cultural and heritage tourism • Revise local and state policies that restrict on-farm processing and innovative niche farming operations	• Implement and maintain current GIS mapping and information to support economic development activities • Market regional agricultural products • Address laws, ordinances, and policies that reduce the potential for sustainable agricultural programs within the region	• Continue and expand tourism marketing, especially within the Southern Maryland Heritage Area • Identify and address regulations that limit home-based and farm-based entrepreneurship, development consistent with county plans • Fast-track priority projects	• Support regional marketing programs for travel and heritage tourism, particularly outdoor recreation, convention attractions, and heritage • Develop skills for collaborative partnerships among governments

A number of themes appear cross-regionally, including:

- Awareness of regional discovery assets in the areas of space, defense, and natural resources-related research, and a desire to make better connections with them
- Calls for more market knowledge and connections in tourism, agriculture, exports, medical-related, elderly-related, and technology transfer
- Focus on entrepreneurship, with regional angles, such as immigrant-fueled specialty ethnic foods, tourism
- Emphasis on human capital – education, workforce training and retraining, and especially, community colleges
- Universal priority to expansion of broadband services
- Need to address other physical capital challenges, particularly the shortage of land that is zoned for business and served by infrastructure
- Revise local and state laws and regulations that restrict activities by agricultural businesses seeking to diversify, apply technology, and produce value-added outputs

The Commission's Recommendations on regional priorities

1. **Make sure that local and regional economic development concerns, priorities and strategies are known to the state and legislature and considered in the state's strategic planning and legislative initiatives.**
   Fundamental building blocks for building an innovation-driven economy do not differ across the state, but the variances in baseline assets and challenges call for stronger emphasis on some of the fundamentals in some places, and tailored adaptations in others.

2. **"Connect the dots" among state innovation field staff and their local partners, and specialist knowledge in other parts of the state.**
   DBED's field staff in Southern and Western Maryland, and the Eastern Shore connect businesses to the resources they need to grow. TEDCO's rural business initiative outreach staff is connecting businesses to universities and federal laboratories that can help them advance their innovations. Maryland Manufacturing Partnership representatives from the University of Maryland are calling on manufacturers to help them apply technology to reduce costs through improved processes, develop new products, and enter new markets. The impact of these activities, in concert with local and regional economic development officials, can be magnified by better integration.

3. **Give top priority to expansion of broadband throughout the state.**

Maryland's Traditional Industries

Manufacturing

Why it's important

Manufacturing provides high quality employment opportunities, with the 3Q 2010 weekly wage in manufacturing ($1221) averaging 33 percent higher than the average private sector wage statewide. Maryland's manufacturing activity is concentrated in high value-added defense, pharmaceuticals and computer/information technology sectors that offer significant opportunities for growth and opportunities for innovation, and for this reason alone, the sector has special significance.

Maryland's profile

According to the Maryland Department of Labor, Licensing and Regulation[5] in the third quarter of 2010, the manufacturing sector accounted for 5.7 percent of total private sector employment. The U.S. Bureau of Economic Analysis concludes that manufacturing produced 5.9 percent of Maryland's economic output (GDP) in 2009. While manufacturing accounts for a smaller share of employment in Maryland than the national average and has declined over the past decade, the sector remains an important contributor to Maryland's overall economy, with employment in the computer equipment, food processing, chemical (including pharmaceuticals) and printing sectors as Maryland's largest manufacturing sectors.

The Commission's recommendations on manufacturing

1. **Accelerate manufacturing partnerships that link high value-added small manufacturers across supply chains and encourage "next generation," knowledge-based manufacturing.**
   "Next generation" manufacturing stresses customer-focused innovation, sustainable products and processes, export to global markets, and educated labor and management. The content covered in the first strategy of this plan applies equally to the state's manufacturing firms. Small firms, in particular, need intensive support in building export capacity, innovation capabilities, and energy efficiencies.

2. **Make it easy for manufacturers to do business in Maryland.**
   Large manufacturers respond strongly to operating costs and how regulations are managed. Environmental regulations are critical to protecting the state's inherent assets and should not be minimized. Rather, improving the predictability and transparency of the regulatory process, as outlined in the next and final strategy, should be the objective.

3. **Position Maryland to be a center of research, development, testing and engineering.**
   Capturing the manufacture of products that result from the state's prowess in research, development, testing, and engineering is an opportunity for synergy across the state, linking the more manufacturing intensive western and eastern areas to the activities in the state's central corridor.

[5] See http://www.dllr.maryland.gov/lmi/emppay/tab1md12010.shtml.

Agriculture and Seafood

Why it's important

In 2008 agriculture generated almost $2 billion in cash receipts; this figure does not include the additional impact of related employment and services. One third of the state's land area is categorized as farm land, and since 1990 the rates of farmland loss have moderated from earlier decades. The sector continues to shape the identity of rural Maryland.

Maryland's profile

Roughly one-third of the agricultural sector is poultry-based, and another 15 percent are commodity crops (wheat, corn, soy), largely suppliers to the poultry industry. In 2008 nearly 40 percent of Maryland's cash farm income was from broilers (chickens). Ornamental horticulture (a significant industry in the state), produce, fruit and wineries comprise the remainder of the sector. The poultry industry is characterized by the dominance of large "integrators" (including Perdue, Mountaire Farms, Tyson and Allen Family Foods), and their growers, smaller poultry operations under contract to deliver broilers raised in special-purpose poultry houses. The growers are responsible for the operating costs associated with the houses. The more than 5500 chicken houses on the Eastern Shore produce tons of waste annually that are a significant source of pollution in the Chesapeake Bay. The interpretation and application of federal environmental regulations are a continual source of contention, and state and federal regulators are working with the industry to determine how best to meet requirements.

The Maryland seafood industry has maintained a strong niche presence nationally, while continuing to consolidate. The Phillips processing plants in the state have helped stabilize the industry, and the demand for locally sourced crab meat in the region allows for a price premium. While oyster yields continue to be problematic, momentum for development of oyster aquaculture is gaining strength.

The Commission's recommendations on agriculture and seafood

1. **Seize the opportunity for innovation linking agriculture with technology.**
   Maryland has significant inventory of agricultural and forested land, and proximity to leading centers of technology research. The content in the first strategy is relevant to exploiting opportunities to global markets, which include sustainable agriculture, water quality and efficiency, and renewable energy production.

   - Organize closer collaboration among federal agencies and labs (Beltsville Agricultural Research Center, National Oceanic and Atmospheric Administration), Maryland university labs (Horn Point and Oxford Research Labs) and state agencies (DBED, Department of Agriculture, Maryland Department of the Environment) on specific projects leading to opportunities in environmental, energy and agricultural industries.

   - Continued state leveraged investment in the seafood industry to modernize operations and expand exporting reach. For example, the state has an opportunity to assist in launching oyster aquaculture.

- Increased funding for effective programs administered by the Maryland Department of Agriculture, notably the Maryland Agricultural Water Quality Cost Share (MACS) and the Cover Crop Program. The MACS program provides Maryland farmers with grants to install energy and waste management projects (leveraged with farmers' investments and ongoing maintenance responsibility) that mitigate the impact of poultry and crop farming on Bay water quality.

2. **Encourage diversity in the agricultural sector, and grow the share of value-added products.**
   Diversifying the sector is one defense against decreasing margins for agricultural commodities like poultry and corn. Growth is restricted in the absence of distribution centers tailored to smaller operations, which limits their ability to take on institutional and commercial customers.

3. **Improve distribution channels for farms looking to achieve scale in serving the Mid-Atlantic market.**
   The state should continue to increase and support retail channels for growers serving burgeoning organic and local produce markets.

Travel and Leisure

Why it's important

The tourism industry in Maryland accounts for more than $13.6 billion in spending. This activity generates $1.6 billion dollars in state and local tax revenue. Tourism is Maryland's eighth largest employer. More than 134,000 employees have jobs in hotels and restaurants, transportation services, arts and entertainment, sports, and other businesses in the tourism industry across the state. A critical subsector of Travel and Leisure is MD's non-profit arts sector which supports more than 11,000 jobs and generates $422 million in local economic activity and $39.5 million in state and local taxes.
Ninety five percent of tourism businesses in Maryland are small businesses with less than 100 employees.

Maryland's profile

In 2009 Maryland hosted more than 29 million domestic visitors. Seventy-six percent of these travelers are attracted for leisure activities and the remaining 24 percent travel to Maryland on business. Of these visitors, nearly 15 million spend at least one night in Maryland. The two most popular tourist destinations in the state are Baltimore in the Central Region and Ocean City on the Eastern Shore.

The state's location on the mid-Atlantic seaboard makes Maryland naturally accessible to large consumer markets in the Northeast, Pennsylvania and Washington, DC suburbs. Among residents within Maryland and bordering states, Maryland has an overall positive image, most recognized for its waterfront, beaches, unique food, and appealing climate.

The Commission's recommendations on travel and leisure

1. **Critical infrastructure improvements, such as ample broadband capacity, will measurably support this industry.**

2. **Expand the reach of marketing efforts to enhance the perception of Maryland, attracting an increased tax base of consumer tourists.** More funding, and greater scale.

3. **Respond to the demand for technology-based information** for consumers (i.e., mobile applications, interactive maps).

4. **Refine county cooperative grant program** to reward counties that invest in local tourism industries and provide the greatest return on investment.

5. **Continued partnerships with federal, state and local agencies:** improve signage, find technological solutions to staffing demands at kiosks and welcome centers, and market efforts in fledging tourism communities.

6. Continue to build awareness and **pursue opportunities in the amateur and global sports** market.

7. **Continue to invest in the non-profit arts sector** by providing critical operational support to more than 200 arts organizations and programs across the state. Continue to develop a comprehensive Public Art Program to enhance arts and cultural tourism.

8. Continue **strategic investments in upcoming major commemorations** (e.g. Harriet Tubman Centennial, Civil War Sesquicentennial, War of 1812 Bicentennial).

Fourth Strategy.

Make it easy [and more profitable] to do business and live in Maryland

Through predictability, transparency and automation

Uncertainty and lack of confidence in the current global economic environment are profoundly influencing consumer and investor behavior. Likewise, lack of certainty and clarity in policy, tax and regulatory spheres hold back growth and innovation. The Commission has largely focused on permitting and regulatory issues, and less on taxation, which is now under careful review by a state tax reform committee and others in the public sphere. This focus is consistent with what the Commission heard from Maryland's business community: we need to pay attention to making it easier to do business in the state.

The extent to which government (local, state or federal) gets in the way of business is inherently difficult to quantify, yet the topic is very real to the business community. At its worst, perceived or real government intransigence is a competitive disadvantage to Maryland, and has been debated within the state for decades.

Businesses and consumers do not, or are not always able to, distinguish between federal, state and local entities and processes when expressing concerns in this area. The confusion complicates potential for improvements, as collaboration and transparency among many jurisdictions and levels of government are required

Technology can vastly improve coordination and introduce increased efficiencies. Culture and organizations that are responsive and flexible, however, play an equally critical role in providing an environment that encourages business and its growth. ***Improvement in this area is as much about changing culture as it is about investment in automation and electronic tools.***

The Issues

Business Licensing

Maryland state agencies administer more than 400 programs to issue permits, licenses, registrations and certifications. Currently, each regulatory program maintains its own separate system. Inconsistencies in application processes, delays, and information gaps contribute to frustration by business users. The Maryland Economic Development Commission supports the state's initiative to develop a centralized business licensing system that involves multiple agencies.

Regulatory and Permitting Processes

The most challenging aspects of state and local regulations and practices relate to timing, lack of clarity and lack of coordination among agencies and jurisdictions. The length and specific elements of review are most often not openly communicated or available. State and local entities do not consistently communicate with one another regarding major projects being reviewed. The Governor's office has established a pilot approach to reforming multi-agency reviews with the State Highway Administration (Maryland Department of Transportation).

Small and MBE Business Policy
Maryland is fortunate to have a high-profile, successful state MBE (minority-owned enterprises) program that supports the growth of Maryland minority businesses and attracts companies from outside the region. The program could use some modifications to reflect changing conditions. The net worth and revenue limits have become prohibitively restrictive, and have indirectly encouraged the departure of larger MBE firms from the state. Restrictions on how joint ventures may be structured inhibit the growth of MBE firms. Other policies guiding approval of small and mid-sized businesses for state contracting can be inflexible, such as those requiring owners to possess specific academic degree status, even if the company possesses ample educational attainment and technical expertise in its overall staff.

Federal Policy
The state has much less influence on federal policy, but with effective political leadership and an embedded federal presence in Maryland, it has more clout than many other states. Two examples of issues critical to Maryland's leading or emerging sectors are:

- Outdated export controls, which prevent export of technology products that are legally available from other developed countries. These have enormous impact on missed export opportunities by technology and defense-related firms in Maryland.

- The absence of clear federal energy policy inhibits further development of emerging clean and renewable industries. Temporary federal tax credits for clean technologies that require renewal, and shifting definitions of what constitutes biomass, are examples of how uncertainty is aggravated for investors in these industries, affecting how quickly they can be commercialized.

State leadership must continue to forcefully communicate Maryland's needs – particularly in new policy areas – to its federal delegation.

The Commission's Recommendations on making it easy to do business

1. **Instill a powerful culture of customer service in state and local agencies handling business permitting and regulatory reviews.**
   - Create a state "Ombudsman Office" with adequate authority to break barriers between state agencies and businesses, and lead new "process engineering" efforts in agencies with intensive review and approval responsibilities.

   - Agencies with significant regulatory or permitting authority should offer customer surveys that are easy to submit electronically and cover key components of the particular review and approval process. Maintaining a certain level of quality (as measured by the surveys) should become one metric gauging the effectiveness of the agency.

2. **Standardize state licensing and permit applications and roll out electronic licensing capabilities throughout the state's agencies.**
   - Fully implement the planned Central Business Licensing project, which will require attention and guidance over the next two years.

- Review the appropriateness of licensing and MBE regulations.

3. **Establish mechanisms that regularly coordinate complex reviews (environmental, construction) among relevant state and local entities.**

This effort is already underway with specific projects and reviews in the state, and needs to be expanded and made permanent.

- Local and state permitting and review processes should be clearly defined and mapped on agency websites.

- The status of pending environmental and infrastructure reviews should be available via web access.

- Complex reviews involving new technologies, products or services should consult external (non-governmental) experts to speed the process of review.

- An internal review of state agency processes should be conducted to identify where there is duplication or delay, with the objective of reducing the total number of steps required in a transaction.

4. Liberalize criteria governing MBE businesses to reflect market realities and growth of mid-sized firms.

Maryland does a good job of supporting its minority- and women-owned businesses. In order to support their growth to the next level, and to avoid consigning them to forever serve as subcontractors rather than prime contractors, a review of rules that limit the ability of Maryland minority firms to grow by doing business with the State of Maryland is needed.

ENDNOTES

1. State programs to help companies succeed in applications for SBIR awards:
   "Phase 0" grants to help with preparation of applications: Enterprise Florida, Oregon, Tennessee Technology Development Corp., and others.
   Matching funds: iBIO (Illinois), Indiana 21st C. Fund, Kentucky Science and Technology Corp., North Carolina Board of Science & Technology, SC Launch!, and others.
   Bridge grants between Phase I and Phase II: Delaware Economic Development Office, New Jersey Commission on Science and Technology and others.

2. Milken: Ross C. Devol, Kevin Klowden, and Benjamin Yeo, State Technology and Science Index 2010: Enduring Lessons for the Intangible Economy. Milken Institute, January 2011.

3. ITIF/Kauffman: Robert D. Atkinson and Scott Andes, The 2010 State New Economy Index: Benchmarking Economic Transformation in the States. Information Technology and Innovation Foundation (with support of the Kauffman Foundation), November 2010.

4. Diane Stangler, High-Growth Firms and the Future of the American Economy. Kauffman Foundation Research Series: Firm Formation and Economic Growth, March 2010.

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Martin O'Malley, Governor